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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PENDLETON, DIONNE

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,195	Applicant(s) PARK ET AL.	
	Examiner DIONNE H. PENDLETON	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/20/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-3, 6-11 and 13-17** are rejected under 35 U.S.C. 102(b) as being anticipated by **Hayashi (US 2002/0047084)**.

Regarding claims 1 and 13,

Hayashi teaches a photodetector (“4” in figures 1-10) for, when light emitted from a two-wavelength light source (“1” in figures 1-10) is divided into at least three light components (paragraph [0038]) to be reflected by an optical recording medium, detecting the reflected light components, the photodetector comprising:

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a first detector ("4a" in figure 2) divided into eight detecting the at least three light components reflected by the optical recording medium to convert the light components into a first set of electrical signals;

a first calculating portion calculating a first tracking error signal from the first set of electrical signals converted by the first detector by a differential push-pull method ("see discussion of calculating tracking error and focus error in paragraphs [0040] via astigmatism, push-pull and phase difference methods);

a second calculating portion calculating a first focusing error signal by an astigmatism method and calculating a second tracking error signal by a differential phase detection method from the first set of electrical signals converted by the first detector ("see discussion of calculating tracking error and focus error in paragraphs [0040] via astigmatism, push-pull and phase difference methods);

a second detector ("4b" in figure 2) divided into four sections detecting the at least three light components reflected by the optical recording medium to convert the at least three light components into a second set of electrical signals;

and a third calculating portion calculating a second focusing error signal by the astigmatism method and calculating a third tracking error signal by the differential phase detection method from the second set of electrical signals converted by the second detector ("see discussion of calculating tracking error and focus error in paragraphs [0040] via astigmatism, push-pull and phase difference methods).

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Regarding claim 2,

Hayashi teaches a photodetector according to claim 1, wherein the first detector comprises:

a first central sensor (see sensor “4”, specifically “4a” in figure 2) having a region divided vertically and horizontally into four sub regions detecting a central light component among the at least three light components reflected by the optical recording medium to convert the central light component into the first set of electrical signals;

a first peripheral sensor having a region divided vertically or horizontally into two sub regions detecting a first peripheral light component among the at least three light components reflected by the optical recording medium to convert the first peripheral light component into the first set of electrical signals (see Figure 2, which teaches at least 2 regions in the first peripheral sensor);

and a second peripheral sensor having a region divided vertically or horizontally into two sub regions detecting a second peripheral light component among the at least three light components detected by the optical recording medium to convert the second peripheral light component into the first set of electrical signals (see Figure 2, which teaches at least 2 regions in the second peripheral sensor).

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Regarding claim 3,

Hayashi teaches the photodetector according to claim 1, wherein the optical recording medium is one among a DVD-R, a DVD+RW, a DVD-RW, and a CD (see paragraphs [0031] and [0040]).

Regarding claim 6,

Hayashi teaches the photodetector according to claim 3, wherein the third calculating portion calculates the second focusing error signal and the third tracking error signal when the optical recording medium is the CD (paragraph [0042] teaches detector “4b” for a CD; paragraph [0040] teaches generation of focus error and tracking error signals).

Regarding claim 7,

Hayashi teaches the photodetector according to claim 1, wherein the first detector is a DVD sensor and the second detector is a CD sensor (lines 17-21 of [0042]).

Regarding claim 8,

Hayashi teaches the photodetector according to claim 7, wherein the DVD sensor includes a first central sensor and first and second peripheral sensors (see “4a” in figure 2).

Regarding claim 9,

Hayashi teaches the photodetector according to claim 8, wherein the first central sensor is divided into four regions and the first and second peripheral sensors are each divided

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into two regions (figure 2; see 4 regions in central sensor, also see at least 2 regions of the peripheral sensor in “4a”).

Regarding claim 10,

Hayashi teaches the photodetector according to claim 9, wherein a 0 order beam is incident on the first central sensor, a +1 order beam is incident on the first peripheral sensor and a -1 order beam is incident on the second peripheral sensor (lines 1-10 in paragraph [0042]).

Regarding claim 11,

Hayashi teaches the photodetector according to claim 7, wherein the DVD sensor generates the first tracking error signal using the differential push-pull method when the optical recording medium is a DVD-R or a DVD.+-.RW and the DVD sensor generates the second tracking error signal using the differential phase detection method when the optical recording medium is a DVD-ROM (paragraph [0040]).

Regarding claim 14,

Hayashi teaches the photodetector according to claim 13, wherein the first detector is divided into eight detecting regions and the second detector is divided into four detecting regions (Figure 2 illustrates first detector “4a” having at least 8 regions while the second detector “4b” has at least 4 regions).

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Regarding claim 15,

Hayashi teaches the photodetector according to claim 13, wherein the first detector is a DVD sensor and the second detector is a CD sensor (lines 17-21 in paragraph [0042]).

Regarding claim 16,

Hayashi teaches the photodetector according to claim 15, wherein the DVD sensor includes a first central sensor and first and second peripheral sensors (see figure 2).

Regarding claim 17,

Hayashi teaches the photodetector according to claim 16, wherein the first central sensor is divided into four regions and the first and second peripheral sensors are each divided into two regions (figure 2; see 4 regions in central sensor, also see at least 2 regions of the peripheral sensor in "4a").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 4, 5 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hayashi (US 2002/0047084)** in view of **Izumi (US 6,778,475)**.

Regarding claim 4,

Hayashi teaches the photodetector according to claim 3.

Hayashi fails to expressly teach that the photodetector further comprises a switching portion as specifically claimed.

Izumi further teaches a switching portion selectively outputting either the first tracking error signal or the second tracking error signal in accordance with a type of optical recording medium (column 15:34-67).

It would have been obvious for one of ordinary skill in the art at the time of the invention alter the device of Hayashi per the teachings of Izumi for the purpose of providing greater disc adaptability.

Regarding claim 5,

Izumi teaches that the switching portion selectively outputs the first tracking error signal calculated by the first calculating portion when the optical recording medium is one among the DVD-R, the DVD+RW, and the DVD-RW, and wherein the switching portion selectively outputs the second tracking error signal calculated by the second calculating portion when the optical recording medium is the DVD ROM (column 16:30-62 and column 17:40-53).

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Regarding claim 12,

Izumi teaches that the first tracking error signal is used for tracking a servo of an optical pick-up when the recording medium is a DVD-R or a DVD+-RW (column 23:31-27 teaches detecting tracking error for DVD-R type disks).

4. **Claims 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hayashi (US 2002/0047084)** in view of **Finkelstein (US 6,940,805)**.

Regarding claim 18,

Hayashi teaches a photodetector ("4" in figure 2) comprising:

a first detector ("4a") detecting light components reflected from an optical recording medium and converting the reflected light components into a first set of electrical signals;

and a second detector ("4b") detecting the light components reflected from the optical recording medium and converting the reflected light components into a second set of electrical signals.

Hayashi fails to expressly teach that the first detector is separated from the second detector as claimed.

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KINKELSTEIN teaches that the first and second detectors are separated by a predetermined distance based on characteristics of optical elements of the first and second detectors (figures 2A-2C; also see column 15:40-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to separate the first and second detectors of Hayashi by a predetermined distance, as taught by Kinkelstein, as a function of the design of the optical system.

Regarding claim 19,

Hayashi teaches the photodetector according to claim 18, wherein the first detector is divided into eight detecting regions and the second detector is divided into four detecting regions (Figure 2 illustrates first detector “4a” having at least 8 regions while the second detector “4b” has at least 4 regions).

Regarding claim 20,

Hayashi teaches the photodetector according to claim 18, wherein the first detector (4a) includes a first central sensor and first and second peripheral sensors (see “4a” in figure 2) and the second detector (4b) includes a second central sensor (shown also in figure 2).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIONNE H. PENDLETON whose telephone number is (571)272-7497. The examiner can normally be reached on 10:30-7:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dionne H Pendleton/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627